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EXAMINER
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CALANDRA, ANTHONY J

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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08/19/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/541,775	<b>Applicant(s)</b> PAREN ET AL.	
	<b>Examiner</b> ANTHONY J. CALANDRA	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-15 and 17-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-15 and 17-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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### ***Detailed Office Action***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/2/2009 has been entered.

Claims 1-12 and 16 have been canceled. Claims 13-15, 17, 18, 21-32 have been amended. Claims 13-15, and 17-32 are currently pending.

### ***Claim Interpretation***

The examiner has interpreted the limitation of a polymer solution consisting of as a solution that may *only* contain two polymers and solvent. The consisting of phraseology limits the clause such that only the named species therein are dissolved in solution. Therefore any further addition to the solution such as a chelant is prohibited by the language.

### ***Specification***

1. The disclosure is objected to because of the following informalities: Alfa throughout the specification (and abstract) used in poly-alfa-hydroxyacrylic acid appears to be an incorrect spelling of 'alpha'

Appropriate correction is required.

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***Claim Objections***

2. Claim 1 objected to because of the following informalities: Alfa appears to be an incorrect spelling of 'alpha'.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 13-15, and 17-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 3,423,452 FORNELLI, hereinafter FORNELLI, in view of the Applicants Admitted Prior Art, hereinafter AAPA.

The examiner shall refer to the *Esp@cenet* German to English Machine translation of Fornelli.

As for claim 13, and 17-20, FORNELLI discloses treating a cellulose containing fiber with a polymer solution consisting of both polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid (*nota bene: the applicant refers to these polymers as polymer A while the prior art refers to them as polymer B* [5, 12-14]) and of polymers of poly alpha hydroxyacrylic acid (*nota bene: the applicant refers to these polymers as polymer B while the prior art refers to them as polymer A* [5, 6]).

FORNELLI may disclose that the additional components are optional [18 and 19]. The examiner notes that it is unclear from the machine translation if these components are optional or not.

FORNELLI claims that the cellulose to be treated is first treated with the stabilizing mixture of claim 1 [claim 3]. FORNELLI claims that subsequent to claim 4 the cellulose is treated with a silicate free hydrogen peroxide. FORNELLI does not claim a washing step between the treatment step and the subsequent hydrogen peroxide bleaching step.

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FORNELLI fails to disclose how the polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid are made prior to mixing in a 1:0.2-5 ratio of polymers of poly alpha hydroxyacrylic acid to polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid.

The AAPA states that the conventional method of making a polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid is by the use of radical copolymerization [applicant's specification pg. 11 lines 4-5, pg. 6 lines 25-26]. The AAPA discloses that the polymers formed by radical polymerization have a pH of about 4 [applicant's specification pg. 11 line 7].

*A polyacrylate copolymer (copolymer A) was made using **conventional radical copolymerization** technique from acrylic acid and maleic acid in molar ratio 60:40.*

FORNELLI further discloses that the maleic acid should be present in a ratio of 1:1 or 50% [14]. At the time of the invention it would have been obvious to the person of ordinary skill in the art to use conventional techniques such as radical copolymerization to form the polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid of FORNELLI. It is *prima facie* obvious to use a known technique with known method ready for improvement to yield predictable results. In the instant case the peroxide stabilization method of FORNELLI would be improved by teaching the methods by which the polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid are conventionally made. The person of ordinary skill in the art would expect predictable results from radical copolymerization of monomers including the formation of polymers at a pH of about 4.

FORNELLI states that the poly-alpha-hydroxyacrylic acid polymers are only optionally neutralized [6]. When mixing the optionally neutralized (i.e. acidic before neutralization) poly-

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alpha-hydroxyacrylic acid polymers of FORNELLI and the polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid of FORNELLI made by the conventional method of the AAPA at the ratios of FORNELLI, for instance, 1:5 poly-alpha-hydroxyacrylic acid polymers to the polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid, it would be expected that the solution would remain acidic and have a pH of below 5.

This is confirmed by example 2 of the applicants specification, a PHAA polymer mixed with a copolymer (made by conventional radical polymerization) at a 1:4 ratio had a final pH 4.5 [pg. 10 example 2]. This was the case even though the PHAA polymer was neutralized. In the prior art neutralization is only optional, as such, the solution of the prior art would be expected to have a pH less than 4.5

As for claim 14, FORNELLI does not require a nitrogen containing chelating agent [19]

As for claim 15, FORNELLI does not disclose the necessity of adding calcium or magnesium to the bleaching process.

As for claims 21-23, FORNELLI discloses that the polymers have a MW range of 5,000 to 500,000 which overlaps with the instant claimed range.

As for claims 24-26, FORNELLI the poly alpha hydroxyl acrylic acid polymer has a preferable molecular weight range of 10,000 to 200,000 which overlaps with the instant claimed range.

As for claims 27 and 28, FORNELLI discloses a polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid. FORNELLI further discloses that the maleic acid should be present in a ratio of 1:1 or 50% which falls within the instant claimed range [14].

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As for claim 29, FORNELLI states that the mixing in a 1:0.2-5 ratio of polymers of poly alpha hydroxyacrylic acid to polymers/copolymers of acrylic acid, maleic acid, and methacrylic acid. This equates to a range of 16-83% of poly alpha hydroxyacrylic acid which overlaps with the instant claimed range.

As for claim 30-33, FORNELLI discloses 0.15 to 1.5% stabilizing mixture on groundwood pulp [30]. This equates to a 1.5 – 15 kg of stabilizing mixture per ton of fibers.

4. Claims 13, 17-26, 29-32 are rejected under 35 U.S.C. 103(a) as obvious over U.S. Patent 6,120,556 NISHINO et al., hereinafter NISHINO.

As for claim 13 and 17, NISHINO discloses a method of bleaching pulp with peroxide in an alkaline medium [column 10 lines 5-20].

NISHINO discloses a polymer solution with both an alpha-hydroxyacrylic acid polymer and a second polymer including polyacrylic acid, poly methacrylic acid, polymaleic acid and the copolymers of the above mentioned acids which is applied to fiber solutions (*a polymer solution consisting a first polymer (A) comprising a homopolymer of acrylic acid, methacrylic acid or maleic acid, or a copolymer of acrylic acid and/or methacrylic acid with an unsaturated dicarboxylic acid, and a second polymer (B) comprising a poly-alfa-hydroxyacrylic acid or a salt thereof, said polymer solution having a pH of at most 7, is added to a cellulosic fibre material* [column 5 lines 25-38, 55-68 and column 6 lines 1-20]).

NISHINO states that there is a chelant mixed with the polymer composition. This conflicts with the applicants “a polymer consisting of” language. The consisting of language

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limits the polymer solution only to polymers A and B and no additional ingredients present. The addition of the chelant of NISHINO with the polymers conflicts with this language.

However, the applicant's consisting of language does not eliminate the use of chelants completely from the bleaching process:

*A claim which depends from a claim which "consists of" the recited elements or steps cannot add an element or step. When the phrase "consists of" appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole. Mannesmann Demag Corp. v. Engineered Metal Products Co., 793 F.2d 1279, 230 USPQ 45 (Fed. Cir. 1986).*

At the time of the invention it would have been obvious to the person of ordinary skill in the art to add the chelant separately from the polymer solution to the lignocellulose either before, after or simultaneously when adding the polymers [see e.g. MPEP 2144.04 (IV) (C) Changes in Sequence of Adding Ingredients]. While NISHINO requires a chelant to be effective in preventing peroxide decomposition in bleaching [TABLE 1], the person of ordinary skill would expect that peroxide decomposition would be prevented as long as the chelant is present in the pulp not how the chelant was added (separately or combined with polymers A and B).

NISHINO teaches that subsequent to the pretreatment process the pulp is then bleached with peroxide (*thereafter adding a peroxide compound and an alkaline substance and carrying out the bleaching* [column 7 lines 19-20]. The pretreated fiber material is **optionally** rinsed with water and squeezed or dehydrated before the bleaching procedure [column 9 lines 10-15]).

NISHINO additionally teaches adding stabilizing pretreatment chemical and peroxide simultaneously (to bleach the fiber material by a bleaching liquid containing a peroxide bleaching agent and the stabilizing agent [abstract]). As such NISHINO teaches pretreatment

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then peroxide and teaches peroxide and pretreatment added simultaneously together. The applicant's claimed time interval (essentially immediately) falls within these two bounds [time between treatments: polymer treatment then after a period of time peroxide > polymer then essentially immediately peroxide > polymer and peroxide added simultaneously]. As such it would be obvious to change the order of addition of chemicals absent evidence of unexpected results [see e.g. MPEP 2144.04 (IV) (C) Changes in Sequence of Adding Ingredients].

NISHINO teaches that the polymer solution can range from a pH of 6 to 11 [column 7 lines 40-43] which is abutting with the instant claimed range of at most 6. NISHINO further gives the more specific range of preferably 6 to 8 [column 8 lines 32-34]. NISHINO discloses how the pH's may be changed to be more acidic or more basic [column 7 lines 45-52]. Adjustments and optimization of pH is a common and well known technique for a person of ordinary skill in the art. At the time of the invention it would have been well with the capability of a person of ordinary skill in the art to optimize the pH of the treatment to at most 6 or to at most 5 through routine experimentation. The pH of the solution is a clear result effective variable. A solution with a pH of 5.9 or 5.95 would perform the same function, in substantially the same way and yield substantially the same result as the pH of 6 claimed by NISHINO. A person of ordinary skill in the art could additionally reasonably expect a pH decrease of 1 or 1.5 from the pH of 6 of NISHINO to be successful.

As for claims 18-20, NISHINO discloses that the polymer solutions include acidic polymers which means that the pH's are at least less than 7 [column 6 lines 5-20]. NISHINO does not disclose the pH of the raw polymer in the specification. However, since the raw polymers are substantially the same (composed of homopolymerization or copolymerization of

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the same base units), it is the examiner's position that without evidence to the contrary that the same raw materials would have the same initial pH.

As for claims 21-23, NISHINO discloses one specific copolymer, 'copolymer 5' with an average MW of 50,000 with is one specific point in the instant claimed ranges [Table 1 notes Copolymer 5].

As for claims 24-26, NISHINO discloses that the alpha-hydroxyacrylic acid has an average MW of 3,000-100,000 which overlaps with the instant claimed ranges with sufficient specificity.

As for claim 29, NISHINO discloses the poly-alpha-hydroxyacrylic acid polymer to be in a 1:2 ratio (33%) with the polyacrylate polymer and therefore falls within the instant claimed range [Table 1 example 2].

As for claim 30 and 31, NISHINO discloses that the pretreatment chemical is preferably supplied from 0.01 to 5% by weight of dry fiber, wherein the polymers comprise about 60% [column 9 lines 24-25 and Table 1]. This is equivalent to .006 to 3 kg per ton pretreatment chemical which overlaps with the instant claimed range with sufficient specificity.

As for claim 32, NISHINO discloses that the fibers that are to be bleached can be chemical (kraft/sulfite), mechanical, semi-chemical, or waste-pulp fibers which the examiner has interpreted as fibers that have been deinked [column 8 lines 66-67 and column 9 lines 1-4].

5. Claims 14-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,120,556 NISHINO et al., hereinafter NISHINO in view of U.S. Patent 4,238,282 HYDE, hereinafter HYDE.

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As for claim 14, NISHINO discloses using a nitrogen containing chelants such as DTPA and TTHA are added to optimize stability. NISHINO discloses other examples wherein DTPA and TTHA are not added, however these show lower peroxide stability [Table 1 comparative example 2]. HYDE discloses non nitrogen containing chelants such as the phosphonates [column 2 lines 15-65]. HYDE additionally discloses polymeric chelants [column 3 lines 25-52], and citric/tartaric/gluconic acids [column 3 lines 55-60]. HYDE states that these compounds are useful for removing iron and manganese [column 1 lines 63-65]. At the time of the invention it would obvious to use the phosphonate chelant or other chelants of HYDE in the pretreatment of NISHINO. It is *prima facie* obvious to substitute one known chelant for another known chelant. A person of ordinary skill in the art would have expected both chelants to remove undesirable metals and prevent peroxide decomposition.

As for claim 15, NISHINO states that the use of additional magnesium is optional and as such discloses a method for treating pulp without said alkaline earth metals [column 7, lines 59-62].

As for claim 17, NISHINO discloses the pretreatment pH range of 6 to 11 [column 9, lines 43-45]. The teaching of an acidic pH of 6 would give an artisan a reasonable expectation of success at an acidic pH of 5. At the time of the invention it would have been *prima facie* obvious to a person of ordinary skill in the art to optimize the pH of the treating absence evidence of unexpected results at a pH of 5 compared to the disclosed pH of 6.

Alternatively, should a person of ordinary skill in the art have substituted the chelant of HYDE for the chelant of NISHINO a pH of 2-6 would have been desirable for treatment of the

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pulp [column 4, lines 5-9]. A person of ordinary skill in the art would be motivated to use such a pH as these pHs are where said chelating agents are most effective [column 4 line 10].

6. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,120,556 NISHINO et al., hereinafter NISHINO in view of U.S. Patent 6,444,771 YAMAGUCHI et al., hereinafter YAMAGUCHI.

As for claims 27 and 28 NISHINO discloses that a polymer containing the copolymers of maleic acid and acrylic acid is used for preserving peroxide stability [column 6 lines 5-20]. NISHINO does not disclose a copolymer with the range of maleic acid as the instant claimed ranges. YAMAGUCHI discloses an acrylic/maleic acid copolymer with a polymer ratio of 40:60 to 60:40 [column 6 lines 22-32]. At the time of the invention it would have been obvious to substitute the polymer of YAMAGUCHI for the polymer of NISHINO. It is *prima facie* obvious to substitute one known polymer for another known polymer intended for the same use. A person of ordinary skill in the art would have a reasonable expectation of success for using the polymer of YAMAGUCHI as NISHINO stated that copolymers of malice/acrylic acid could be used. Further, YAMAGUCHI suggests that the disclosed polymer also prevents scaling and has high metal ion scavengability [column 1 lines 10-15].

### ***Response to Arguments***

#### ***Claim objections***

In light of amendment the rejection to claim 17 has been withdrawn.

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*Rejections in view of NISHINO*

**Applicant argues that NISHINO fails to teach treating the pulp with peroxide essentially immediately after the treatment with stabilizers and that NISHINO only teaches two possibilities treating the lignocellulose with the polymer solution and peroxide simultaneously or treating the lignocellulose with the polymer solution, waiting a period of time and then treating the lignocellulose with peroxide.**

The examiner agrees with the applicant's characterization of what is taught by NISHINO but disagrees with the conclusion therefrom. The applicant's claimed time interval (essentially immediately) falls within these two bounds [time between treatments: polymer treatment then after a period of time peroxide > applicant's polymer then essentially immediately peroxide > polymer and peroxide added simultaneously]. As such it would be obvious to change the order of addition of chemicals absent evidence of unexpected results [see e.g. MPEP 2144.04 (IV) (C) Changes in Sequence of Adding Ingredients]. A person of ordinary skill in the art would expect success from adding two ingredients essentially immediately if success was obtained from adding two ingredients simultaneously.

**Applicant argues that when the polymers of NISHINO would cause precipitation at a pH of 8-10.**

NISHINO teaches a preferred range which includes the pH of 6.

**Applicant argues that NISHINO teaches away from a pH of 6 and a pH less than 5.**

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Nishino at least teaches a pH of 6 which is an acidic pH and abuts with the instant claimed range of at most 6. Nishino even claims a pH of 6 as a more preferred embodiment. Therefore the claimed range of 'at most 6' which includes 6 is certainly obvious over a more preferred range of 6-8. A solution with a pH of 5.999, 5.9 or even 5.95 would perform the same function, in substantially the same way and yield substantially the same result as the pH of 6 claimed by NISHINO.

This leaves the dependent claim 17 of at most a pH of 5. A person of ordinary skill in the art would conclude that both a pH of 5 would be successful as a pH of 5 and 6 are both weakly acidic pHs. A pH of 6 is described as a more preferred pH. There has been no unexpected result between a pH of 6 and a pH of 5 shown by the applicant. Applicant has argued the turbidity of a pH of 6.4 but not the turbidity of the pH of 6 which is claimed by the applicant and a more preferred embodiment of Nishino.

**Applicant argues that since EDTMP did not produce satisfactory results it would be non obvious to substitute a phosphonate chelant for a nitrogen containing chelant.**

The chelant EDTMP is shown poorly in experiments 12 and 14. In experiment 12 the EDTMP is combined with a SPA1 polymer and performs better than DTPA of experiment 6 combined with SPA1 polymer. DTPA is shown effective in example 1-7, and 9-17. In experiment 14 while EDTMP is combined with PHAS, it is combined with SPA4, not the SPA1 or SPA2 of example 1-17. Therefore it cannot be concluded that EDTMP is poorly performing since no experiment was conducted with EDTMP, SPA1, and PHAS together. The comparison

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of experiments 12 and 6 may even lead the person of ordinary skill to conclude that such an experiment may provide better results.

Finally applicant argues that Nishino certainly concludes that nitrogen is an essential feature of the invention. Removing metals from the solution by way of chelants is the critical feature of the invention [column 2 lines 25-30]. Metal ions degrade peroxide in pulp bleaching systems. The applicant has not shown why a person of ordinary skill in the art would find that the metal ions must be removed by a nitrogen containing chelant compared to a non-nitrogen containing chelant. Both nitrogen containing chelants and non-nitrogen containing chelants are intended for the same purpose, removing metals in pulp bleaching.

Additionally applicant's argument of requiring nitrogen in the chelant conflicts with the applicant's argument that EDTMP is ineffective. While EDTMP is a phosphonic acid it *also contains nitrogen*. If it is allegedly ineffective as the applicant argues, then a chelant which contains nitrogen is also ineffective. Therefore nitrogen cannot be a critical feature based on the applicant's arguments.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anthony J Calandra/  
Examiner, Art Unit 1791

/Eric Hug/  
Primary Examiner, Art Unit 1791